

| | | | | | |
|--------------------------------------------|---|---|---|---|---|
| FIP 276 Managing Fire Services | 3 | 0 | 0 | 0 | 3 |
| FIP 144 Sprinklers & Auto Alarms | 2 | 2 | 0 | 0 | 3 |
| FIP 148 Portable and Fixed Exting. Sys | 2 | 2 | 0 | 0 | 3 |
| FIP 152 Fire Protection Law | 3 | 0 | 0 | 0 | 3 |
| FIP 221 Advanced Fire Fighting Strategies | 3 | 0 | 0 | 0 | 3 |
| Prereq: FIP 220 | | | | | |
| FIP 224 Instructional Methodology | 4 | 0 | 0 | 0 | 4 |
| FIP 231 Chem of Hazardous Mat II | 4 | 2 | 0 | 0 | 5 |
| Prereq: FIP 230 | | | | | |
| OR | | | | | |
| CHM 152 General Chemistry II | 3 | 2 | 0 | 0 | 4 |
| Prereq: CHM 151 | | | | | |
| OR | | | | | |
| PHY 152 College Physics II | 3 | 2 | 0 | 0 | 4 |
| Prereq: PHY 151 | | | | | |
| FIP 232 Hydraulics & Water Dist. | 2 | 2 | 0 | 0 | 3 |
| Prereq: MAT 140 | | | | | |
| FIP 264 Flame Prop & Mat. Rating | 1 | 4 | 0 | 0 | 3 |
| General Education Core Requirements | | | | | |
| ENG 111 Expository Writing | 3 | 0 | 0 | 0 | 3 |
| ENG 114 Professional Research & Reporting | 3 | 0 | 0 | 0 | 3 |
| OR | | | | | |
| ENG 113 Literature Based Research | 3 | 0 | 0 | 0 | 3 |
| COM 231 Public Speaking | 3 | 0 | 0 | 0 | 3 |
| OR | | | | | |
| COM 110 Introduction to Communications | 3 | 0 | 0 | 0 | 3 |
| MAT 140 Survey of Mathematics | 3 | 0 | 0 | 0 | 3 |
| PSY 150 General Psychology | 3 | 0 | 0 | 0 | 3 |
| CIS 111 Basic PC Literacy | 3 | 0 | 0 | 0 | 3 |

NOTE: Students must choose a minimum of three (3) credit hours from the list of approved humanities courses listed at the end of this section of the catalog. Student intending to continue at a university level, it is suggested that they also take MAT 161.

Total Credit Hours **71**

Geospatial Technology (A40220)

The Geospatial Technology curriculum provides a broad background in Geographic Information System (GIS) and Global Positioning System (GPS) technologies with practical applications in municipal, industrial, natural resources management, and other fields.

Course work consists of class and hands-on experience with GIS/GPS technologies, including running and modifying current GIS software, creating and manipulating GIS databases, and operating GPS technology.

Graduates should find employment as field technicians or as database and mapping assistants.

Degree Awarded

The Associate in Applied Science Degree – Geospatial Technology will be awarded by the College upon completion of this program.

Admissions

- A high school diploma or equivalent is required.
- CPCC placement tests are required in English and mathematics. Developmental classes in mathematics and English courses are available for students to build basic skills and knowledge.
- A counseling/orientation appointment follows placement testing.
- Students should see a faculty advisor before registration.
- Many courses have prerequisites or corequisites; check the Course Descriptions section for details.

Note: Students who do not take program-related courses for a one year period must reenter the program under the Catalog in effect at the time of reentry.

Contact Information

Geospatial Technology is in the Engineering Technologies Division. For more information, call 704.330.6531, or visit our web site at www.cpcc.edu/gttc

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|-------------------------------------------|-------|-----|----------------|-------------|---------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 120 Introduction to Geodesy | 2 | 2 | 0 | 0 | 3 |
| GIS 121 Georeferencing and Mapping Skills | 2 | 2 | 0 | 0 | 3 |
| GIS 125 CAD for GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 240 Air Photo Interpretation | 2 | 2 | 0 | 0 | 3 |
| CIS 110 Introduction to Computers | 2 | 2 | 0 | 0 | 3 |
| DBA 110 Database Concepts | 2 | 2 | 0 | 0 | 3 |
| GIS 161 Intro to Computers BASIC & C++ | 2 | 2 | 0 | 0 | 3 |
| GIS 221 Advanced Topics in GIS | 1 | 2 | 0 | 0 | 2 |
| GIS 235 Raster GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 215 GIS Data Models | 2 | 2 | 0 | 0 | 3 |
| GIS 230 GIS Data Creation | 2 | 2 | 0 | 0 | 3 |
| GIS 225 Advanced Methods in GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 241 Cartographic Production | 2 | 2 | 0 | 0 | 3 |

Technical Electives: Select 5 SHC from the list below.

| | | | | | |
|-------------------------------------------|---|---|---|----|---|
| GIS 251 Computer Graphics/Mapping I | 2 | 0 | 0 | 0 | 2 |
| GIS 232 Spatial Databases | 2 | 2 | 0 | 0 | 3 |
| GIS 112 Introduction to GPS | 2 | 2 | 0 | 0 | 3 |
| GIS 245 Intro to Spatial Analysis | 2 | 2 | 0 | 0 | 3 |
| GIS 252 Utilities in GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 212 GIS/GPS Applications | 4 | 4 | 0 | 0 | 6 |
| GIS 222 Internet Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 261 Programming in GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 246 Prin. of Property Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 255 Advanced Spatial Analysis | 2 | 2 | 0 | 0 | 3 |
| GIS 211 GIS/GPS Project | 1 | 2 | 0 | 0 | 2 |
| GIS 231 Geo Position Sys. Methods | 1 | 4 | 0 | 0 | 3 |
| GIS 249 Remote Sensing | 2 | 2 | 0 | 0 | 3 |
| GIS 259 Photogrammetry | 2 | 2 | 0 | 0 | 3 |
| GIS 262 GIS Programming Trends | 2 | 2 | 0 | 0 | 3 |
| DBA 115 Database Applications | 2 | 2 | 0 | 0 | 3 |
| DBA 112 Database Utilization | 2 | 2 | 0 | 0 | 3 |
| CSC 134 C++ Programming | 2 | 3 | 0 | 0 | 3 |
| CSC 139 Visual Basic Programming | 2 | 3 | 0 | 0 | 3 |
| CSC 151 JAVA Programming | 2 | 3 | 0 | 0 | 3 |
| CSC 234 Advanced C++ Programming | 2 | 3 | 0 | 0 | 3 |
| CSC 239 Advanced Visual Basic Programming | 2 | 3 | 0 | 0 | 3 |
| COE 112E Co-operative Work Experience I | 0 | 0 | 0 | 20 | 2 |
| COE 122E Co-operative Work Experience II | 0 | 0 | 0 | 20 | 2 |
| SRV 110 Surveying I | 2 | 6 | 0 | 0 | 4 |
| SRV 111 Surveying II | 2 | 6 | 0 | 0 | 4 |
| SRV 210 Surveying III | 2 | 6 | 0 | 0 | 4 |
| SRV 220 Surveying Law | 2 | 2 | 0 | 0 | 3 |
| SRV 250 Advanced Surveying | 2 | 6 | 0 | 0 | 4 |

General Education Core Requirements

| | | | | | |
|---------------------------------------------|---|---|---|---|---|
| ENG 111 Expository Writing | 3 | 0 | 0 | 0 | 3 |
| ENG 114 Professional Research and Reporting | 3 | 0 | 0 | 0 | 3 |
| COM 110 Introduction to Communications | 3 | 0 | 0 | 0 | 3 |
| MAT 121 Algebra/Trigonometry I | 2 | 2 | 0 | 0 | 3 |
| GEO 110 Intro to Geography | 3 | 0 | 0 | 0 | 3 |

Students must choose a minimum of three (3) credit hours from the list of approved humanities courses listed at the end of this section of the catalog.

| | | | | | |
|--|---|---|---|---|---|
| | 3 | 0 | 0 | 0 | 3 |
|--|---|---|---|---|---|

Students must choose a minimum (3) credit hours from the list of approved behavioral and social sciences courses listed at the end of this section of the catalog.

| | | | | | |
|--|---|---|---|---|---|
| | 3 | 0 | 0 | 0 | 3 |
|--|---|---|---|---|---|

Total Credit Hours 67

Geospatial Technology Certificates (C40220)

Geospatial Technology Certificate - Geographic Information Science (C40220-C1)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|------------------------------------|-------|-----|-------------------|----------------|-----------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 120 Introduction to Geodesy | 2 | 2 | 0 | 0 | 3 |
| GIS 121 Georeferencing and Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 240 Air Photo Interpretation | 2 | 2 | 0 | 0 | 3 |
| GIS 125 CAD for GIS | 2 | 2 | 0 | 0 | 3 |
| Total Credit Hours | | | | | 15 |

Geospatial Technology Certificate - Advanced Geospatial Specialist (C40220-C2)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|-------------------------------------------|-------|-----|-------------------|----------------|---------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 121 Georeferencing and Mapping Skills | 2 | 2 | 0 | 0 | 3 |

Students must select a minimum of 2 courses from the following list of courses:

| | | | | | |
|----------------------------------------|---|---|---|---|-----------|
| GIS 240 Air Photo Interpretation | 2 | 2 | 0 | 0 | 3 |
| GIS 215 GIS Data Models | 2 | 2 | 0 | 0 | 3 |
| GIS 230 GIS Data Creation | 2 | 2 | 0 | 0 | 3 |
| GIS 232 Spatial Databases | 2 | 2 | 0 | 0 | 3 |
| GIS 252 Utilities in GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 231 GPS Methods | 1 | 4 | 0 | 0 | 3 |
| GIS 249 Remote Sensing | 2 | 2 | 0 | 0 | 3 |
| GIS 225 Advanced Methods in GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 241 Cartographic Production | 2 | 2 | 0 | 0 | 3 |
| GIS 235 Raster GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 222 Internet Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 246 Principles of Property Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 259 Photogrammetry | 2 | 2 | 0 | 0 | 3 |
| Total Credit Hours | | | | | 12 |

Geospatial Technology Certificate - Database Specialist (C40220-C3)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|----------------------------------|-------|-----|-------------------|----------------|-----------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 121 Georeferencing & Mapping | 2 | 2 | 0 | 0 | 3 |
| DBA 110 Database Concepts | 2 | 2 | 0 | 0 | 3 |
| DBA 115 Database Applications | 2 | 2 | 0 | 0 | 3 |
| DBA 112 Database Utilization | 2 | 2 | 0 | 0 | 3 |
| Total Credit Hours | | | | | 15 |

Geospatial Technology Certificate - Programming Specialist (C40220-C4)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|----------------------------------|-------|-----|-------------------|----------------|---------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 121 Georeferencing & Mapping | 2 | 2 | 0 | 0 | 3 |

Students must select a minimum of 2 courses from the following pairs of courses:

| | | | | | |
|-------------------------------------------|---|---|---|---|-----------|
| CSC 134 C++ Programming | 2 | 3 | 0 | 0 | 3 |
| CSC 234 Advanced C++ Programming | 2 | 3 | 0 | 0 | 3 |
| OR | | | | | |
| CSC 139 Visual Basic Programming | 2 | 3 | 0 | 0 | 3 |
| CSC 239 Advanced Visual Basic Programming | 2 | 3 | 0 | 0 | 3 |
| OR | | | | | |
| GIS 262 GIS Programming Trends | 2 | 2 | 0 | 0 | 3 |
| GIS 261 Programming in GIS | 2 | 2 | 0 | 0 | 3 |
| Total Credit Hours | | | | | 12 |

Geospatial Technology Certificate - Geodetic Specialist (C40220-C5)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|-----------------------------|-------|-----|-------------------|----------------|--------------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 112 Introduction to GPS | 2 | 2 | 0 | 0 | 3 |
| SRV 111 Surveying II | 2 | 6 | 0 | 0 | 4 |
| GIS 231 GPS Methods | 1 | 4 | 0 | 0 | 3 |
| OR | | | | | |
| SRV 250 Advanced Surveying | 2 | 6 | 0 | 0 | 4 |
| Total Credit Hours | | | | | 13-14 |

Geospatial Technology Certificate - Photogrammetry Specialist (C40220-C6)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|----------------------------------|-------|-----|-------------------|----------------|-----------|
| GIS 121 Georeferencing & Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 240 Air Photo Interpretation | 2 | 2 | 0 | 0 | 3 |
| GIS 249 Remote Sensing | 2 | 2 | 0 | 0 | 3 |
| GIS 259 Photogrammetry | 2 | 2 | 0 | 0 | 3 |
| Total Credit Hours | | | | | 12 |

Geospatial Technology Certificate - Cartography Specialist (C40220-C7)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|----------------------------------|-------|-----|-------------------|----------------|-----------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 121 Georeferencing & Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 232 Spatial Databases | 2 | 2 | 0 | 0 | 3 |
| GIS 222 Internet Mapping | 2 | 2 | 0 | 0 | 3 |
| Total Credit Hours | | | | | 12 |

Geospatial Technology Certificate - Utilities Specialist (C40220-C8)

Major and Related Course Requirements

| | Class | Lab | Hours Clinical | Work Exper. | Credits |
|----------------------------------|-------|-----|-------------------|----------------|-----------|
| GIS 111 Introduction to GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 121 Georeferencing & Mapping | 2 | 2 | 0 | 0 | 3 |
| GIS 252 Utilities in GIS | 2 | 2 | 0 | 0 | 3 |
| GIS 112 Introduction to GPS | 2 | 2 | 0 | 0 | 3 |
| OR | | | | | |
| GIS 231 GPS Methods | 1 | 4 | 0 | 0 | 3 |
| Total Credit Hours | | | | | 12 |